THE CHESAPEAKE CHEMIST

MARYLAND SECTION
AMERICAN CHEMICAL SOCIETY

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McCORMICK & CO., INC.

WORLD HEADQUARTERS

The Johns Hopkins University
1994 Spring Chemistry Colloquium Schedule

Remsen 233, Tuesdays, 4:15 p.m.
For more information contact Rosalie Elder (410) 516-7432

March 4 ***Friday***	**Prof. Astrid Gräslund** University of Stockholm	"EPR and NMR Studies of Ribonucleotide Reductase"
March 15	**Prof. Albert S. Mildvan** Biological Chemistry, JHMI	"Studies of Enzymes Which Catalyze Nucleophilic Substitution at Phosphorus"
March 29	**Prof. Terence H. Risby** JHU, School of Hygiene	"Exhaled Breath: Monitoring Oxidant Stress in Clinical Studies"
April 5	**Prof. Thomas E. Mallouk** Penn State University	"Artificial Photosynthesis in Microporous Solids"
April 12	**Prof. Thomas C. Bruice** UC, Santa Barbara	"Approaches to DNA Recognition and Modification"
April 18 ***Monday***	**Prof. Christopher Switzer** UC, Riverside	"Biotic and Extrabiotic Chemistry of Some Nucleic Acid Variants"
April 27 ***Wednesday***	**Prof. Carl Lineberger** University of Colorado	"Time-Resolved Dynamics in Large Molecular Cluster Ions"

1994 NORRIS AWARD NOMINATIONS

Nominations are being received for the 1994 James Flack Norris Award for Outstanding Achievement in the Teaching of Chemistry. The Norris Award, one of the oldest awards given by a Section of the American Chemical Society, is presented annually by the Northeastern Section. It consists of a certificate and an honorarium of $3000. Nominees must have served with special distinction as teachers of chemistry at any level: Secondary school, college level, or graduate school. This must be attested by broad evidence of their students' subsequent careers in chemistry and/or other evidence of wide-ranging effects on the teaching of chemistry. Since 1951 past winners have included eminent as well as less-widely-known but equally effective teachers at all levels. The awardee for 1993 was Professor Arthur C. Breyer of Beaver College, Glenside, Pennsylvania.

Nominations for 1994 will be received until April 15, 1994. Nominating material must be limited to thirty pages and focus specifically on the nominee's contribution to and effectiveness in teaching chemistry. This should include a thorough curriculum vitae with listings of honors, awards, and such publications as relate to education. There must be a nominating letter and as many seconding letters as are necessary to convey the nominee's teaching in inspiring students to spend their professional life in chemistry, with broad student testimonial. They will also attest to the influence of other activities in chemical education such as textbooks, articles, or other activities at national level. Materials should be standard 8½ by 11 inch size for binding but should not include reprints or books.

Nominating materials should be sent before April 15, 1994, to Elmer E. Jones, 67 Brook Road, Weston, MA 02193-1766.

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SUZANNE QUILLEN LOMAX

Suzanne Quillen Lomax received her Ph.D. in Organic Chemistry in 1984 from the University of Maryland, working with Patrick Mariano exploring the photochemistry of iminium salts. She then went to Northwestern University, where she performed postdoctoral research with Frederick Lewis, examining intermolecular photo-addition reactions. Before beginning her work at the National Gallery, Dr. Lomax worked in the Office of Toxic Substances of the EPA. She has been at the National Gallery Science Department since February, 1986, investigating the identification and aging behavior of artists' materials.

THE APPLICATION OF CHEMISTRY TO THE EXAMINATION OF WORKS OF ART

Scientists have been associated with museum conservation laboratories for many years. Only recently, however, have art curators and conservators begun to appreciate the contributions that scientists can make in the preservation and restoration of art objects. At present, about a dozen museums in the United States have conservation science departments, employing approximately fifty conservation scientists.

Art conservators frequently require specific information about the component materials of a painting or object prior to treatment. Due to their complex stratification, most questions which arise concern the nature of the components of paintings. Microscopic cross sections of a painting are frequently taken and viewed with a polarizing microscope to understand the different layers that make up the object. Pigment identification is frequently employed to determine if the pigments are in keeping with the time period of the object, as well as to understand the artists' materials and methods. They are performed using polarized light microscopy and x-ray diffraction of powdered samples, or x-ray fluorescence, which is well suited to this task due to its non-invasive nature.

To study the identity of binding media, the conservation scientist uses GC, HPLC, and infrared spectroscopy. Ultraviolet radiation can be used to examine the varnish layer of a painting as well as to identify areas retouched in previous conservation treatments. Infrared reflectography is frequently used to examine underdrawing on a painting. In addition, x-rays are often used to determine where lead white has been used on a painting, as well as to reveal damaged areas beneath the paintings' surface.

The talk will focus on the application of these various techniques to the examination of paintings and sculpture. Examples will be presented from the National Gallery collection.

Ye Olde McCormick Tea Room - taken from the old Light Street plant. Reconstructed at the new World Headquarters.

MARCH MEETING

DATE & PLACE:

Wednesday, March 9, 1994
McCormick & Company
World Headquarters
Sparks, Maryland

Dinner reservations should be made by mailing checks, payable to Maryland Section of ACS, to

Dr. Stephen M. Gregory
College of Notre Dame
4701 North Charles Street
Baltimore, MD 21210

by March 2. Late reservations may be made by calling

(410) 532-5714 or
(410) 833-9366

by March 4. Answering machines are available at these numbers.

Dinner price is $20.00 per person, but spouses and retired chemists may attend for $18.00; students may attend for $10.00.

It is not necessary to be a member of the American Chemical Society to attend. You may attend the lecture without attending the dinner.

SUZANNE QUILLEN LOMAX

SCHEDULE:

6:00 Social Hour

7:00 Dinner

8:00 SUZANNE QUILLEN LOMAX
National Gallery of Art
"The Application of Chemistry to the Examination of Works of Art"

DIRECTIONS: Take I-83 north from I-695 (Baltimore Beltway). Take Exit 20-A, Shawan Road. At the second light (York Road) make a left turn to go north. Drive north about two miles (to about 14,200 York Road), then make a left turn at the light onto Loveton Circle. The McCormick World Headquarters is in a wooded lot about one-half mile from York Road (on the left if you got the first entrance to Loveton Circle). Parking is located to the left of the building and a reception area is at the front in the main entrance.

SUGGESTIONS REQUESTED FOR POSSIBLE NOMINEES TO INVENTORS HALL OF FAME

All ACS members are invited by the Society's Committee on Patents and Related Matters (CP&RM) to make suggestions to the Committee on possible candidates for induction into the National Inventors Hall of Fame. The inventor may or may not be a U.S. citizen, but the invention upon which the nomination is based must be covered by a U.S. patent. The invention must have contributed greatly to the national welfare, and significantly promoted progress in science and the useful arts.

Nomination documents may be obtained by calling 202/872-8725, or writing to the staff liaison to CP&RM, Ms. Debora Fillinich, American Chemical Society, 1155 Sixteenth Street, NW, Washington, DC 20036. The deadline for submitting nominations for the 1995 Award is February 28, 1994.

CHANGE OF ADDRESS

It is not necessary to notify The Chesapeake Chemist of address changes. We get our mailing labels from the ACS each month, so if you inform the ACS of your address change, we will automatically receive the correct label.

BILLION$, BAUBLES, BANGLES - BAKELITE: SCIENTISTS CHOOSE FIRST NATIONAL HISTORIC CHEMICAL LANDMARK

About 90 years ago, in Yonkers, N.Y., a Belgian-born chemist, Dr. Leo H. Baekeland, made the world's first plastic. It was called "bakelite." Two years ago, more than $100 billion of bakelite and its plastic spinoffs were shipped in the U.S.

The American Chemical Society (ACS) commemorated Baekeland's serendipitous discovery with the first National Historic Chemical Landmark designation on November 9, 1993. The ACS marked the occasion at the Smithsonian Institution's National Museum of American History in Washington, D.C., where Baekeland's "bakelizer" is housed. The bakelizer is the device he used to form bakelite.

"Old Faithful," as the bakelizer was called, opened the age of plastics when the General Bakelite Company plant in Perth Amboy, N.J., came online in 1910.

Plastic gained in popularity in the 1930s when color was added and new processing was introduced.

At $100 billion plus per year, it's difficult to imagine anything the ubiquitous plastic offspring of bakelite haven't affected: clothing that is fire resistant, bullet proof and requires no ironing; computers, televisions and telephones that are increasingly portable and less expensive; and batteries and fiber optics that help us keep in touch with the rest of the world.

From the 1920s - 1940s, couturiers Coco Chanel and Elsa Schiaparelli, with artists like Jean Schlumberger and Salvador Dali, introduced lines of phenolic resin jewelry. A July 1985 *Chicago Tribune* article, and several others since, noted a continuing craze. Demand has been rising since 1981. Collectors paying $25 - $200 for baubles in 1985 found prices for these same trinkets as high as $2,000 just last year.

The craze for "dime-store" jewelry may be topped by another hot item, old plastic radios. Nathan Cobb reported in the February 14, 1988 *Boston Globe* that many mid-1930s to mid-1940s bakelite radios, even those that wouldn't work exceeded $1,000. One collector paid $10,000 in 1988, a price that doubled from the previous year, according to the *Globe*.

Today, even the dinosaur has raised demand for old bakelite. Since Michael Crichton's *Jurassic Park* premise about extracting dinosaur DNA from the blood of a prehistoric mosquito, the demand for amber is up. Amber is fossilized tree sap and is the stuff that preserved the mosquito and its dinner. Because old bakelite physically resembles amber, there also is an increased demand for the synthetic look-alike.

As you might expect with this increased demand, the price of both amber and old bakelite is not cheap. Interestingly, though, the cost of the synthetic can be more than the natural product. Laura Goldstein, in *The Washington Post Magazine*, August 8, 1993, mentioned $700 as the price for an amber bead necklace. Arlene Vigoda, in the August 7, 1992, *USA Today*, reported bakelite necklaces fetching $2,000.

This cost oddity is reminiscent of a line in the opening of the TV series *WKRP In Cincinnati:* "Don't be fooled by imitations. Insist on genuine plastic!"

From ACS News Service

NORTHWEST REGIONAL MEETING

The Northwest Regional Meeting of the ACS will be held June 16-18, 1994 at the University of Alaska Anchorage. Persons interested in submitting papers should contact Larry Duffy, Ph.D., Department of Chemistry, University of Alaska Fairbanks, Fairbanks AK 99775; phone (907) 474-7525. Submission deadline is March 15.

UNIVERSITY OF MARYLAND BALTIMORE COUNTY DEPARTMENT OF CHEMISTRY AND BIOCHEMISTRY

SPRING 1994 SEMINAR SCHEDULE

February 1	Dr. Dennis Flint E.I. DuPont Central Research and Development	"The Role of Fe-S Clusters in Enzymes of the Hydro-Lyase Class and in the Biotin Synthase Reaction"
February 8	Dr. Lidia Vallarino Department of Chemistry Virginia Commonwealth University	"Design, Synthesis and Applications of Lanthanide Macrocyclic Complexes"
February 22	Dr. Dennis Evans Department of Chemistry University of Delaware	"Bond Cleavage Initiated by Electron Transfer: Nitroalkanes to Bucky Balls"
March 8	Dr. Brian Judd Department of Physics and Astronomy Johns Hopkins University	"A New Perspective on the Rare Earths"
March 22	Dr. James Herndon Department of Chemistry UMCP	"Annulation Reactions Using Transition Metal Complexes"
March 29	Dr. Phyllis Robinson Department of Biology UMBC	"Constitutively Active Mutants of Rhodopsin"
April 12	Dr. V.S.R. Rao Indian Institute of Science NCI - Visiting Scientist	"Conformations and Interactions of Carbohydrates"
April 19	Dr. Stanley Pine California State Univ. (on leave at the NSF)	"Carbonyl Methenylation Using Titanium Reagents"
April 26	Dr. Quentin McDonald Department of Chemistry Columbia University	"Quantitative Simulation of the Conformational Preferences of Amides in Solution"
May 3	Dr. Kenneth Johnson Department of Biochemistry and Molecular Biology Pennsylvania State University	"HIV Reverse Transcriptase: Mechanism and Inhibition"
May 10	Dr. David Weber Dept.of Biological Chemistry UMAB	"Structure and Function Studies of the Enzyme Mut-T"

Seminars take place at 3:30 PM in Room 403, Biological Sciences Building unless otherwise noted. For additional information, please contact Dr. Aris Kalivretenos at (410) 455-2516 or Dr. George Murray at (410) 455-2190.

MARYLAND SECTION FUTURE PROGRAM

April 20, 1994	Dr. Ned Heindel, ACS President, "Science in the Smithsonian" at Western Maryland College; Student Awards Night.
May 18, 1994	Remsen Award Meeting at The Johns Hopkins University.